



PROCEEDINGS  
OF THE  
**LINNEAN SOCIETY**  
OF NEW SOUTH WALES.

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WEDNESDAY, JANUARY 29<sup>TH</sup>, 1879.

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The President, Rev. J. E. Tenison-Woods, F.G.S., F.L.S., etc.,  
in the Chair.

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The President introduced to the Meeting the following gentlemen as Visitors:—The Hon. Louis Hope, W. H. Archer Esq., W. A. Haswell, Esq., M.A., B.Sc., and Dr. O'Connor, of H.M.S. "Sapphire."

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PAPERS READ.

ON SOME TERTIARY FOSSILS.

BY THE REV. J. E. TENISON-WOODS, F.G.S., F.L.S., PRESIDENT  
LINNEAN SOCIETY, N.S.W., &c., &c.

At a recent meeting of this Society I described some fossils from the tertiary (probably Miocene) beds of Muddy Creek, Western Victoria. I now complete the list of all those at present in my hands. They came from the same locality, and were obtained for me by the late Mr. Samuel Pratt Winter, who I regret to add died at the close of last year. I take this opportunity

of expressing what a loss science has sustained in the death of so estimable a man. Not only was his house hospitably open to all who desired to advance the knowledge of the geology of the district, but during the last 20 years he constantly gave me the most untiring and valuable assistance in all my studies. It is an additional source of regret to me that he was not able to receive from me the feeble, but sincere acknowledgment of his assistance which I have given in the preceding paper.

The fossils here described have no special character which calls for notice. The resemblances to Miocene forms of Europe are fewer. A *Leiostraca* and a *Crossea* connect them with our existing fauna, but the general character differs much from anything we have with us now. It has been thought that our fossil fauna is somewhat like the facies of that living in Philippine Seas; but this is not the case. The fauna of North Eastern Australia has a large number of species identical with those now living in the Philippine seas, but the relations between the Queensland marine fauna and that of our Miocene seas is very remote. The relations are not evident so far, except with the Miocene of Europe, but this will more clearly be seen when the whole of the paleontology of the beds has been dealt with.

EULIMA DANÆ. Pl. 1, fig. 1.

*Testa, late pyramidata, polita, solida, apice acuto; anfr. 12, planatis lævibus, lineis incrementi tantum insignitis, sutura haud impressa, periphæria obtuse angulata, apertura late ovata, labro tenui, acuto, antice producto; labio antice tantum reflexo.* Alt.  $13\frac{1}{2}$ , lat.  $4\frac{1}{2}$ .

Shell broadly pyramidal, polished, solid, apex acute, whorls 12 quite flat, smooth, only marked and generally very faintly with the lines of growth, suture only marked by a fine line, periphery obtusely angular, aperture widely ovate, labrum thin, acute, produced anteriorly, lip reflected anteriorly.

This fossil is not uncommon in the beds, but the specimens usually met with are not quite so stout as represented in the figure.

## LEIOSTRACA ACUTISPIRA. Pl. 1, fig. 2.

*Testa parva, subulata, medio parum ventricosa, polita, tenui; anfr.* 11, *haud latis, omnino lævibus, sutura vix visibili; apertura pyriformi, labro antice producto; labio parvo, angusto, rotundato.* Long.  $8\frac{1}{2}$ , lat. 2.

Shell small, subulate, slightly ventricose in the middle, polished, thin; whorls 11, not wide, altogether smooth, suture scarcely visible, aperture pyriform, labrum produced anteriorly, lip small, narrow, rounded.

The differences between this shell and *L australis*, our only Australian species, are, first that the fossil is smaller, opaque, much more acute in the spire, with many more whorls in proportion; there is a peculiarity in *L. australis* from which this fossil completely differs, the top of the spire is obtusely rounded and on the summit the nucleus is placed like a little granule.

## CONUS PULLULASCENS. Pl.1, fig. 3-4.

The two cones figured on this plate I only name provisionally. They are the same species, but fig 4 is very much worn. The specimens seen by me are all extremely small with a very large conspicuous pullus, the upper angle of the whorls is distinctly and elegantly ribbed, and the whole shell is deeply and distantly spirally grooved. Larger and more numerous specimens may enable me to give better details, and more information as to the relations of the species.

## LEDA LUCIDA. Pl. 1, fig. 5 and 5 a.

*Testa parva, tumida, solida, polita, æquilaterali quasi, ovata, concentricè regulariter costata, costis rotundatis, æqualibus; latere postico vix producto, subacute angulato, area postangulari vix sulcata; latere antico brevi, obtuse rotundato, umbonibus subacutis.* Long.  $3\frac{1}{2}$ , lat.  $5\frac{1}{2}$ , alt. 2.

Shell small, tumid, solid, polished, equilateral, almost ovate, regularly concentrically ribbed, ribs rounded equal, posterior side scarcely produced subacutely angular, posterior angle scarcely sulcate, anterior side short, obtusely rounded, umbone subacute.

This fossil differs from those previously described, in its short posterior side and the absence of any groove within the angle. It is also of tumid shape and the ribs are regular.

CROSSEA PARVULA. Pl. 1, fig. 7,

*Testa minuta, oblique discoidea, late profundeque umbilicata, solida, nitente; anfr. 3½, rotundatis, regulariter, concinne, spiritaliter striatis, apice prominulo; apertura exacte orbiculata, labro crassa, postice producto, cum margine umbilici conjuncto, labio immerso, antice incrassato, producto, angulato, umbilico, concauo.*

A minute *Natica*-like shell, with a wide umbilicus and the columella produced into a thickened anterior angle, the labrum is also produced very much posteriorly, so as to be continuous with a solid margin, which surrounds the umbilicus; the aperture is perfectly round and solid, which is the character of the whole shell. There are also signs of fine punctate dots in the grooves, which neatly ornament the lower whorls, like *C. concinna* Angas of Port Jackson. *Crossea* may be said to be a characteristic Australian genus. The peculiar angular extension of the columella easily serves to distinguish it. This is the first instance of its being found fossil. It comes very close to the existing species, but is very much smaller.

TRIVIA MINIMA. Pl. 1, fig. 8, 8a.

*Testa parva, late ovata, globosa, nitente, spira omnino oclusa; costis distantibus, medio sulco conspicuo separatis, aliquando bifurcatis, aliquando costis brevioribus intercalantibus; apertura angusta, utrimque curvata, labio angulato; labro incrassato, lato, subvaricoso. Long. 6, lat. 5½, alt., 3½.*

Shell small, broadly ovate globose or ventricose, spire quite concealed; ribs distant, well raised and conspicuous, separated on the back by a conspicuous groove, some bifurcating and some shorter ribs sometimes intercalated in the interstices; aperture narrow, curved at each end; lip angular, the ends of the ribs forming the teeth, which are somewhat close; the labrum is

broad, thickened, and almost varicose, the teeth being rather distant.

This fossil is in its general form extremely like *T. avellanoides*, McCoy, but it is so very small and stouter in proportion to its size. It not a young shell, for not only is it always found of the same size, but the young of this genus present an entirely different aspect, The costa are much stronger in proportion to the size, they are fewer, the vacant dorsal space is not nearly so clearly defined, the labrum is thick, with fewer teeth, and it does not overlap as in *T. avellanoides*.

CERITHIUM EUSMILIA. Pl. 1, fig. 9.

*Testa parva, anguste pyramidata, turrata, nitente; anfr. 8,? (decoll.) infra carinatis, 11 - 14 costis concinnis, infra sulcatis, insignitis; costis angustis, rotundatis, exacte definitis; interstitiis striatis, periphæria angulata, sutura funiculo insignita; apertura rotundata, labro tenui, canali brevissimo, basi planata, radiatim crebre, conspicue, striata.*

This small *Cerithium* was never found in a perfect state. It is a *Turbonilla*, but for the mouth. The distant raised ribs render it easy of recognition, for they are not divided into granules, and at the lower part of each one there is a distinct angular notch, which extends into the interstices. The periphery is angular, base flat and radiately striate, the suture with a narrow spiral thread, and the canal very short and recurved.

CERITHIUM SALTERIANA. Pl. 1, fig. 11.

*Testa minuta, tumide turrata, apice inflato; anfr. 11, planatis, oblique crebre costatis, costis regulariter granosis; granis superne majoribus; apertura quadrata, canali spiraliter curvato, columella uniplicata, labro tenui, nucleo trochiformi, 2½ anfr. tumido, costato. Alt. 4½, lat. vix 1, mill.*

This peculiar fossil is mainly distinguished from the very numerous members of this genus, (containing many hundred species, recent and fossil), by its small size, tumid apex and



spiral canal. The ornamentation of the flat whorl, is confined to numerous small close sloping ribs, which are divided into many granules. The divisions between which correspond so as to give rise to spiral grooves. The upper granules on each rib are rather larger than the rest, giving the suture a somewhat coronate appearance.

TRIFORIS WILKINSONI, var. PSILA. Pl. 1, fig. 10.

*Testa fere minuta, turritissima, solidiuscula nitente, apice acuto; anfr. 17, convexis, conspicue 4 carinatis, crebre costatis, carinis supra cost. transeuntibus et ibi nodosis, costis in 3 ultimis anfr. antice evanidis ita ut 3 carinis sint lævibus, sutura late caniculata et funiculo minuto insignito, basi lirata, canali brevi, obliquo, apertura ovata. Long. 8½, lat. 2.*

This small fossil, which is almost minute in size, is very similar to *T. Wilkinsoni*, nobis, except that the longitudinal costæ disappear in the three last whirls towards the base, and the base is lirate not radiately costate. Still I do not think it more than a variety.

TRIFORIS PLANATA. Pl. 1, fig. 12.

*Testa parva, elongata, turrita, pyramidata, nitente; anfr. 13, planatis, oblique costatis, basim versus duobus liris spiralibus insignitis, superiori granulosa, granulis cum costis concurrentibus, inferiori supra suturam lævi, rotundata, basi, concava, unicarinata, radiatim corrugata; apertura quadrata, labro tenui, cum canali continuo; labio reflexo, canali angusto, brevi, recurvo, pene clauso, apice obtuso, nucleo reverso, costis crebris, (ult. anf. 24) rotundatis, parum elevatis. Alt. 9, lat. 2.*

This fossil is mainly distinguished by its acicular form, and its numerous close oblique ribs which are divided at the base by a groove. The suture is covered by a smooth rounded raised line. The aperture is quadrate and the outer lip thin, continuous with the short curved canal, which is almost closed. The base is concave, unicarinate and radiately rugose. It differs from the described fossils of the genus in Australia in the lower groove.

*Triforis sulcata* is a very much larger shell and with two grooves only in the middle of the whorls.

TROPHON POLYPHYLLIA. Pl. 2, fig. 1.

*Testa parva, fere minuta, ovata; anfr. 6, convexis, medio angulatis, undique (nucleo  $2\frac{1}{2}$  anfr. excluso) lamellose costatis; lamellis, valde undulosis, superne spiniferis, spinis curvatis, concavis, peripheria angulata; apertura orbiculata, polita, labro incrassato, intus tuberculato, canali praelongo, conspicue recurvo; nucleo polito, laxi, fere verticaliter sito. Long.  $5\frac{1}{2}$  lat.  $2\frac{1}{2}$ .*

This is a very interesting little fossil, very distinct in every way from any now existing on the Australian coast. It is very small, and the whorls which are angular in the middle are closely covered with delicate undulating frills. Some of the undulations are prolonged into concave spines on the lower whorls and the upper part of the penultimate one. The aperture is orbicular, enamelled and the inner lip is tubercular; the canal is long, not quite open and much curved; the nucleus is almost unrolled, erect and highly polished.

Plate 2, fig. 2, represents a common form of the young of *Nassa Tatei*, nobis.

MITRA DAPHNELLOIDES. Pl. 2, fig. 3.

*Testa parva, ovata, utrinque attenuata, solida, nitente, apertura spira æquanti; anfr.  $6\frac{1}{2}$ , parum convexis, crebre costatis, et concinne crebre, regulariter liratis, superne late sulcatis; costis angustis, parum elevatis, ultimo anfr. evanidis; liris supra costas transeuntibus; nucleo  $1\frac{1}{2}$  anfr. polito; apertura angusta, fauce lirata, ovata; sutura marginata, labro acuto, columella duobus plicis subobsoletis. Long.  $6\frac{1}{2}$ , lat. 3.*

A rather ovate, solid, shining little shell, with the aperture and spire about equal; closely, finely ribbed on the spire and covered with small, neat, very distinct liræ, which pass over the ribs. The ribs become obsolete on the last whorl, and on the upper part of every whorl there is a broad, wide groove-like space below the suture which is margined. The columella has only two very

indistinct tooth-like plaits. The labrum is thin, and the throat lirate. There is a constriction of the labrum at the suture which with the flat sulcus at the upper part of the whorl gives this shell the aspect of a *Daphnella*. The obsolete plaits on the columella bear out this resemblance.

MITRA OTHONE. Pl. 2, fig. 4.

*Testa parva, orata, utrinque attenuata, solidiuscula; anfr. 6, æqualiter, crebre cancellata, liris longitudinalibus et spiralibus ita ut textilosa apparent, sutura haud impressa, spira conica, ultim. anfr. haud æ quanti; apice acuto, apertura anguste ovata, labro solido, simplici; columella definita, 4 plicata, 2 mediis majoribus. Long. 10, lat. 4½. Nomen specificum a Gr. οθωνη (lintheum,) derivatur ab aspectu texturato totius testæ.*

This is a small *Mitra*, the whole surface of which is closely cancellated so as to resemble linen. The suture is not impressed, the spire conical; the whorls very slightly convex; the columella has four plaits, two central being larger and more oblique.

MITRA DICTUA. Pl. 3, fig. 7.

*Testa elongato-fusiformi, spira quam apertura longiori, opaca; anfr. 6½ parum convexis, declivibus, undique subtilissime clathratis, ultimo anfr. costis longitud. evanidis, lineis spiralibus validis alternantibus; apice lævi, apertura late ovata; canali haud brevi, labro tenui, columella biplicata, plica antica absolata. Long. 12, lat. 5½, long spir. 7.*

This shell is very closely allied to *M. alokiza* but the differences are, that it is broader in proportion to the length and finely laticed, while *M. a.* is simply grooved, and the grooves are regularly and finely punctate, with three distinct plaits on the columella, while this species has only two and the lower one almost obsolete. The canal is also longer and more acute while the anterior end of *M. a.* is obtuse, and the suture is marginate.

MITRA COARCTATA. Pl. 2, fig. 10,

*Testa parva, anguste ovata, polita, spira brevi; anfr. 3, lævibus, striis incrementi tantum insignitis; apice obtuso, sutura inconspicuo,*



*marginata; apertura elongata, labro simplici, columella contorta, encausta, marginata, 4 plicis elevatis, valde obliquis insignita.* Long. 7, lat.  $2\frac{3}{4}$ .

This shell is easily distinguished by its narrow elongate form devoid of ornament, polished, but with rather conspicuous lines of growth. The columella is twisted, highly enamelled, margined with a distinct rounded raised line, and with four raised, very oblique plaits. The spire is very short, conspicuous, with a fine margined suture and obtuse apex.

MITRA ALOKIZA. Pl. 2, fig. 12.

*Testa parva, angusta, fusiformi, turrata, spira quam apert. longiori, solida, nitente; anfr. 6, parum convexis, regulariter concinne spiraliter striatis; striis crebre, eleganter punctatis; lineis incrementi conspicuis, sutura bene impressa, conspicue marginata; apertura anguste ovata, labro simplici, columella exacte definita, triplicata.* Long. 11, lat.  $3\frac{1}{2}$ .

This small *Mitra* is in shape a miniature of our common *M. badia* but probably more slender in proportion to its length. Its peculiar distinction lies in the whorls being regularly and distantly striate and the striæ being very elegantly and closely dotted. It is probable that in less worn shells these dots would seem to be caused by very small riblets. The suture is well impressed and very distinctly margined. The aperture is short and the columella has three plaits, the posterior the largest.

PLEUROTOMA CONSUTILIS. Pl. 2, fig. 5.

*Testa parva, fusiformi, utrimque acuta, spira quam apertura paulo longiori, tenui; anfr. 7, medio angulatis, sub-elongatis, undique oblique subtilissime, concinne, cancellatis, supra carinam late, haud profunde sulcatis, sulco medio funiculato, transversim lineis parvis, curvatis, crebre sculpto; sutura sulco angusto marginata; apertura lata; labro medio valde producto, sinu lato, profundo, columella exacte definita, polita; canali contorto.* Long. 11, lat. 4, long spiræ  $6\frac{1}{2}$ .

Though this shell is destitute of any striking ornamentation, it is easily distinguished from the species already described. It is very neatly, obliquely cancellate, the transverse and longitudinal

lines being very neat, distinct, equal, and sufficiently distant to leave very definite rhomboidal spaces. The whorls are keeled in the middle, about which there is a rather broad, flat, shallow, groove which corresponds to the sinus. It has a fine line in the centre, and is closely transversely marked with elegant curved ribs. The aperture is wide, the labrum much produced in the middle, and the sinus is very conspicuous, wide and deep. The canal is twisted. The neat distant cancellation, and the fine lines on the groove give the surface an appearance of open thread work, hence the name.

PLEUROTOMA RHOMBOIDALIS. Pl. 2, fig. 9.

*Testa parva, rhomboidea, tenui, nitente, apice obtuso; anfr. 4½, ultimo longe majori, superne obtuse angulato et oblique, undulose, crebre eleganterque costato, spiraliter tenue lirato; infra spiraliter, distanter carinato; supra angulum late sulcato; sutura anguste canaliculata et eleganter coronata; nucleo conspicuo, tumido, lævi; spira cancellata; apertura anguste orata, postice acuta, labro tenui, acuto, labio definito, canali lato, aperto, parum elongato; sinu lato, profundo, supra angulum sito. Long. 5, lat. 2½.*

This small shell of which I have only seen one specimen, is described from what is evidently a young individual, but sufficiently developed to determine its character. Shape rhomboidal and almost like a *Conus*. The lower part of the last whorl is spirally distantly keeled with small rounded inconspicuous keels, and crossed lengthwise with conspicuous irregular undulating lines of growth. Last whorl obtusely angled above, at the line of sinus, where it is ornamented with crescentic, small, close, neat ribs, making a very handsome coronate ornamentation. Above this there is a groove, and then a beautifully coronate margin to the suture, which is channelled. The whole of this part of the shell is cancellated by close round liræ; the nucleus is pullus-like and smooth. Aperture acutely angular posteriorly. Canal not very long and rather broad.

## PLEUROTOMA CLARÆ. Pl. 3, fig. 11.

*Testa elongato-fusiformi, tenui, opaca; anfr.  $6\frac{1}{2}$ , convexis, declivibus, undique tenue, spiraliter liratis, spira nodoso-costatis, penult. anfr. aboletis, ult. cranidis, apertura late orata, labro tenui, sinu lato, postico, profundo; ultimo anfr. ad peripheriam obtuse angulato.* Alt. 11, lat. 4.

This fossil must be mainly distinguished by the absence of any ornament. The upper part of the spire is ribbed and in the lower whorls, these ribs become obsolete. The periphery of the last whorl is obtusely angular and the whole shell is covered spirally with close fine thread-like liræ. The aperture is broad and the sinus wide, deep, and conspicuous. A peculiarity in this shell is that the lines of growth scarcely show at all.

Fig. 12 on the same plate appears to be a variety of the same shell in which the ribs are closer and more crescentic on the spire and the lines of growth are more distinct.

## DRILLIA INTEGRÆ. Pl. 3, fig. 4.

*Testa elongato-fusiformi, spira quam apertura longiori, tenui, polita; anfr.  $6\frac{1}{2}$  parum convexis, conspicue costatis, superne late sulcatis; regulariter, spiraliter, concinne, liratis; costis latis, rotundatis, obliquiis; striis incrementi conspicuis, apertura rhomboidea, quasi integra; labro incrassato, sinu postico lato, profundo, cum sulco anfractuum concurrente; labio crasso, reflexo, postice elevato, canali brevi; nucleo ( $2\frac{1}{2}$  anf.) lævi; sutura marginata.* Alt.  $9\frac{1}{3}$ , lat. 4, long spiræ 6.

Shell elongately fusiform, spire longer than the aperture, thin, polished; whorls  $6\frac{1}{2}$  slightly convex, conspicuously ribbed, broadly sulcate above, regularly, spirally, neatly, lirate; ribs wide, rounded, oblique, lines of growth conspicuous. Aperture rhomboid, almost entire. Labrum thickened, sinus deep, broad, corresponding with the groove in the whorls; lip thick, reflexed raised posteriorly; canal short, nucleus of  $2\frac{1}{2}$  whorls, smooth, suture marginate.

This fossil is a good deal like some existing forms, but differs in the peculiarly thickened almost entire aperture and the broad groove on the upper part of the whorls. The spiral liræ are also very neat and characteristic.

DRILLIA STIZA. Pl. 2, fig. 11.

*Testa parva, elongato-fusiformi, turrata, spira quam apert. longiori, nitente; anfr. 7½, planatis, supra suturam late sulcatis, et 2 lirulis cinctis, deinde carinatis, postea uni liratis, una serie granulorum, 2 lirulis et una carina zonatis; undique crebre, longitud. undulose, striatis; sutura late sulcata; apice obtuso; nucleo 2½ anfr. 1½ lævib. uni-costato; apertura lata, labro simplici, labio reflexo, crasso, canali brevi, acuto, sinu inconspicuo serie granulorum concurrente. Long. 9½, lat. 3½, long spiræ 5½.*

A small, elongately fusiform shell, with the following ornamentation on the whorls. Immediately above the suture there is a wide, deep groove, then a sharp keel, then a thin thread, then a series of small rounded granules, then two liræ and another keel. The suture is broadly grooved, and the apex has 1½ whorls smooth and closely ornamented with crescentic ribs. The aperture is broad, the lip thickened, the canal short and stout, and the sinus inconspicuous, apparently corresponding with the series of granules.

FUSUS STYLIFORMIS. Pl. 3, fig. 6.

*Testa parva, gracili, elongato-fusiformi, tenui, turrita; anfr. 7, longis, prismaticis, convexis, parum declivibus, distanter conspicue costatis et crebre spiraliter liratis; costis paucis (ult. anfr. 7), concinnis, angustis, rotundatis, parum elevatis; liris planatis, interstitiis æquantibus, supra costas transeuntibus, sutura impressa; apertura ovata, labro tenui, simplici; columella planata, canali recto, angusto, prælongo, gracili. Long. 11, lat. 3.*

A small graceful elongately fusiform, thin, shell of 7 whorls, which are rendered almost prismatic by the few projecting neatly rounded ribs. These are closely crossed by close flat liræ, which

equal the interstices in width. The canal is very long, straight and slender.

FUSUS INO. Pl. 3, fig. 10.

*Testa parva, fusiformi, opaca; anfr. 5½, rotundatis, crebre spiraliter liratis, liris magnis et parvis alternantibus; sutura bene impressa, apertura ovata, canali prælongo, contorto, labro simplici, columella exacte definita, polita, basi unicarinata nucleo tumido (2½ anf.) lævi.* Alt. 16, lat 6.

A small fusiform, opaque shell of 5½ whorls, which are rounded and finely, spirally lirate, the liræ alternating, large and small. The canal is long and twisted. The main distinguishing feature is a peculiar keel, which runs round the basal whorl and terminates in the outer lip at the origin of the canal. The apex is obtuse, the nucleus of 2½ smooth tumid whorls.

FASCIOLARIA TENISONI. Pl. 3, fig. 3.

*Testa ovato-fusiformi, parva, solidiuscula. apice obtuso; anfr. 5½ late costatis et tenuiter crebre carinatis, superne angulatis; costis distantibus, elevatis, rotundatis, ad angulum desinentibus; carinis angustis, parvis, supra costas transeuntib.; interstitiis creberrime, subtilissime, longitud. striatis, et aliquando funiculo insignitis, sutura anguste canaliculato; nucleo depresso, polito; apertura late ovata, labro solido, simplici; columella definita, polita, plica postica inconspicua, canali elongato, recto.* Long. 20, lat. 8½, anal 5,

Shell ovately fusiform, small, rather solid, apex obtuse, whorls 5½, broadly ribbed, keeled with close fine keels, angular above: ribs distant, raised, rounded, ceasing at the angle; keels narrow small, round; interstices closely and very finely, but neatly and distinctly striate, sometimes with a fine spiral thread. Suture narrowly canaliculate; nucleus depressed, polished; aperture broadly ovate, labrum solid, simple; columella defined, polished, plait posterior, inconspicuous, canal long, straight.

I have named this shell after Col. King Tenison.



## COLUMBELLA HEMIOTHONE. Pl. 3, fig. 8.

*Testa fusiforme-ovata, parva, solidiuscula, nitente, opaca; anfr 7, convexis 3 ult. crebre, quasi textilose cancellatis, 2 spiræ distanter regulariter costatis, 2 anfr. nucl. lævibus; apertura ovata, labro tenui, simplici; columella definita, polita, parum planata, canali vix recurvo. Long 9½, lat. 3½. Liræ longitud. anfract. ult. paulo majori. Basi 3 lineis gr anulosis, spiraliter cinctis.*

Shell fusiformly ovate, small, rather solid, shining opaque. Whorls seven, convex. The three last are very closely and finely cancellate, but the longitudinal lines are rather more conspicuous and rib-like, and the base of the last whorl has three spiral lines of granules rather distant from each other. Two of the whorls of the spire are conspicuously ribbed with rather convex ribs, and the two whorls of the nucleus are smooth. The aperture is ovate the outer lip simple, columella well defined, flattened and polished and the canal short and not recurved.

It is evident that this fossil departs very widely from typical species of *Columbella*, yet I cannot see anywhere else to place it.

## ÆSOPUS SEMICOSTATUS. Pl. 3, fig. 9.

*Testa elongato-fusiformi, turrata, parva, tenui, opaca; anfr. 8, rotundatis, declivibus, regulariter 5—8 carinatis, 4, anfr. opicalibus spiræ distanter costatis, nucleo, 2¼ anfr. elongato, declivi, polito; costis angustis, elevatis, concinnis; carinis acutis, parum elevatis; interstitiis tenuiter crebre costatis; apertura ovata, polita, sulcata; labro varice insignito, concavo, columella occulto, canali brevi recurvo. Alt. 7½, lat. 2½, spir. 5.*

Shell small, elongately fusiform, turretted, spire much longer than the aperture, thin, opaque; whorls 8, rounded, sloping regularly, 5 to 8 keeled; 4 apical whorls of the spire are ribbed and the nucleus of 2¼ whorls, elongately sloping and polished. The spire ribs are narrow, raised, neat; the keels acute slightly raised; the interstices finely, closely ribbed, so as to give the whole shell a somewhat latticed appearance. Aperture ovate,

polished, sulcate; labrum marked with a varix, concave, columella hidden, canal short, recurved. Suture well impressed and with a slender thread round it.

I am in doubt about the genus of this and the following shell.

? *ÆSOPUS CREBRECOSTATUS*. Pl. 3, fig. 5.

*Testa parva, elongato-fusiformi, turrata, solidiuscula, nitente; anfr. 6½, rotundatis, declivibus, crebre costatis, filis spiralibus minutis cinctis; costis acutis, curvatis, ultim. anfr. 22; filis supra costas transeuntibus; sutura bene impressa; nucleo 1½ anfr. polito; apertura lata, labro varice incrassato, columella polita, postice tuberculato; fauce encausta, canali brevi, parum recurvo.* Long. 9 lat. 4.

Shell small, elongately fusiform, turretted, somewhat solid, shining, whorls  $6\frac{1}{2}$ , rounded, sloping, closely ribbed, and spirally girdled with very fine threads. The ribs are acute, curved, 22 on the last whorl; threads passing over the ribs, suture well impressed; nucleus of  $1\frac{1}{2}$  whorls, polished. Aperture broad, a varix on the outer lip, the throat enamelled, and the columella with a posterior tubercle. The canal is very short and slightly recurved.

*TRITON WOODSII*, R. Tate, M.S. Pl. 3, fig. 1—2.

*Testa late fusiformi, parva, tenui; anfr. 6, convexis, medio angulatis undique crebre, cinctis, tenuiter cancellatis, vel quasi textile decussatis; varicibus conspicuis angustis, elevatis; apertura late ovata, fauce encausta, labro varicoso, ad marginem acuto, intus dentato; labro definito, parum reflexo; canali prælongo, aperto, obliquo, recurvo, nucleo levi, apice verticaliter disjuncto.* Long. 12 lat. 9.

Shell broadly fusiform, small, thin, whorls 6, convex angular in the middle, covered all over with a close, fine cancellation, which is very like a woven fabric. The varices are conspicuous, narrow, and much raised; cancellate like the body of the shell. The aperture is widely ovate with the throat enamelled, and the

labrum varicose, with an acute margin, dentate inside; lip defined and slightly reflexed; canal rather long, open, oblique, and recurved. The nucleus is smooth, rather large with the apex disjoined and curiously twisted up into an erect position.

This fossil had been figured by me when I received from Prof. Tate the information that he had already named it after me in a MS. account of the Murray fossils. In publishing my notes under his name, I beg to thank him at the same time for his courtesy, and to apologize for having anticipated his notes.

TROPHON SUCCINCTUS. Pl. 4, fig. 6, 6a.

*Testa elongato-turbinata, tenuiuscula; anfr. 5½, (nucleo 1½ incluso) subglobosis, superne subplanatis, undique equaliter, distanter, acute carinatis, et conspicue, undulose striatis, lineis, incrementi; carinis rugulosis, subtus concavis, elevatis, superne 3 parum majoribus, prope apicem quasi cancellatis, interstitiis profundis, rotundatis; nucleo tumido, laevi; apertura lata, ovata, labro tenui, crebre undulato, intus sulcato; labio definito, polito, canali obliquo, longo, recurvo; sutura profunde canaliculata. Long. 24, lat. 16, long spir. 8, long. canal 7.*

This elegant species is turbinate in shape and rather thin. It is covered all over with equal, sharp, and high keels which are rendered rather rugged at the edge from the undulose lines of growth which cover the shell longitudinally. Three of these keels are a little larger and more distinct at the upper part of the whorl, which is a little flat towards the suture. The canal is rather long, oblique and recurved, the outer lip is thin and closely undulate, from the keels which are hollow underneath. The throat is regularly grooved and the nucleus tumid and smooth. The habit and form of this shell brings it near to *Purpura*, but I think it finds its best place in the genus wherein I have placed it. Prof. Tate informs me that his largest specimen is  $1\frac{1}{4}$  inch long and  $\frac{3}{4}$  inch wide.

## CASSIS EXIGUA. Pl. 2, fig. 7.

*Testa parva, ovata, subventricosa, nitente; anfr 3½. superne obtuseangulatis, et corrugatis, spiraliter concinne striatis, et longitud. crebre irregulariter corrugato sulcatis, variciferis; striis cerebris, undulosis, sutura granulose marginata, nucleo globoso, lævi, apertura sinuata, utrimque curvata; labro crassa, rotundato, intus obsolete dentato; labio inconspicuo, postice uni-tuberculato, antice 4 dentibus, gradatim crescentibus insignito; canali lato, brevissimo. Long. 10, lat. 6½.*

Shell small, subventricose, shining, whorls 3½, obtusely angular above and corrugated, neatly, spirally striate and lengthwise closely, irregularly, corrugately sulcate; varices at about every half whorl. Striæ close and undulating, suture granulosely marginate, nucleus globose, smooth and shining of one whorl, and very conspicuous. Aperture sinuous, curved at each end; labrum thick, rounded, obsoletely dentate within; lip inconspicuous, with one posterior tubercle and four teeth gradually increasing in size on the anterior end of the columella, canal broad and very short.

This is evidently a young shell, but not immature so that it can be safely described. The last whorl and the mouth is perfectly complete, and the mamillate or pullus-like nucleus show what the earlier stages are. In size it cannot be compared to any existing species, but in ornamentation there is a faint approach to our living Australian *C. paucirugis*. That shell is more granular. In the fossil the corrugations at the angle are a double series of ribs arising at different parts of the angle and near the mouth they are faintly continuous with the sulci of the whorl.

## CANCELLARIA LATICOSTATA. Pl. 2, fig. 8.

*T. parva, umbilicata, ovata, utrimque acuta, ad suturam constricta et late, profundeque canaliculata; anfr. 5, late costatis (ult. anfr. 10), spiraliter distanter valide liratis, longitudinater striatis, striis,*

*crebris, subtilissimis; costis subplanatis, ad angulum eleganter superne rotundatis, interstitiis angustis; liræ rotundatis, parum elevatis, apice lævi, polita; apertura integra, antice et postice obtuse angulata; labro simplici, tenui; fauce distanter lirata, labio reflexo columella buplicata, umbilico angusto, profundo. Long. 6, lat.  $3\frac{1}{2}$ .*

Shell small, umbilicate, ovate, acute at both ends, rising in pagoda-like stages from the deep channel and constriction at the suture. Whorls 5, broadly ribbed (10 on last whorl), distinctly and distantly, spirally lirate, striate lengthwise, striæ close, and very fine. Ribs elegantly rounded at the suture so as to give a coronate appearance to each whorl. The liræ are rounded and not elevated, and the ribs are separated by a rather narrow depression. Apex smooth and polished. Aperture entire, angular at each end. Throat broadly grooved; labrum simple, lip reflexed, umbilicus narrow but deep. Two plaits on the columella.

This is a very remarkable form of *Cancellaria*, very distinct from any living form in size, and the peculiar style of its ornament.

NISO PSILA. Pl. 1, fig. 6.

*Testa parva, pyramidata, turrita, politissima; anfr. 9, planata, striis incrementi distanter insignitis et striis spiralibus, subtilissimis regulariter cinctis; ad peripheriam obtuse angulatis; umbilico extus carinato; apertura integra, antice et postice angulata. Alt. 7, lat. vix 3.*

Shell small, pyramidal, turreted, very smooth, and highly polished, showing rather distantly and regularly longitudinal depressed lines of growth. Regularly and distantly, spirally, striate, but in the faintest possible manner, and only visible with a lens. The periphery is obtusely angled. The umbilicus is sharply keeled externally. The aperture is entire, angled above and below.



This fossil occurs in the Murray beds, according to Prof. Tate who also considers that the drawing does not represent the shell in the manner it is familiar to him. The whorls are more numerous and not so regularly increasing in size. I believe that this fossil has a wide vertical as well a horizontal range.

CYLICHNA EXIGUA. Pl. 2, fig. 6.

This fossil I have figured as one of those specimens which may perhaps be identified with Quoy and Gaimard's shell, *C. arachis*. It is very much smaller, is highly polished, the apical foramen much larger in proportion to the size, the umbilicus marked. The resemblances are the general form and the peculiar spiral undulating lines. The latter feature may however be common to more than one species. A shell of the size and the peculiar ferruginous periostrata of the existing *Cylichna arachis*, I have not met as a fossil at Muddy Creek. If the specimen figured be not new I propose for it the name of variety—*exigua*. It should be further remarked that in the fossil the apex is flat, obliquely truncate, the labrum remarkably posteriorly produced, and the spiral grooves are well marked, deep in proportion to the size and not so numerous.

EXPLANATION OF PLATES.

Plate I.

- Fig. 1.—*Eulima Danæ*, enlarged.  
 „ 2.—*Leiostraca acutispira*, enlarged.  
 „ 3.—*Conus pullulascens*, much enlarged.  
 „ 4.—*Conus pullulascens*, worn specimen, much enlarged.  
 „ 5.—*Leda lucida*, much enlarged.  
 „ 6.—*Niso psila*, much enlarged,  
 „ 7.—*Crossea parvula*, much enlarged.  
 „ 8.—*Trivia minima*, *a.* seen from above, *b.* mouth, much enlarged.  
 „ 9.—*Cerithium eusmilis*, much enlarged.  
 „ 10.—*Triforis Wilkinsoni*, much enlarged.



- Fig. 11.—*Cerithium salteriana*, much enlarged.  
 ,, 12.—*Triforis planata*, much enlarged.

## Plate II.

- Fig. 1.—*Trophon polyphyllia*, much enlarged.  
 ,, 2.—*Nassa Tatei*, young specimens, much enlarged.  
 ,, 3.—*Mitra daphnelloides*, much enlarged,  
 ,, 4.—*Mitra othone*, twice nat. size.  
 ,, 5.—*Pleurotoma consutilis*, enlarged.  
 ,, 6.—*Cylichna exigua*, much enlarged.  
 ,, 7.—*Cassis exigua*, twice nat. size.  
 ,, 8.—*Cancellaria laticostata*, much enlarged.  
 ,, 9.—*Pleurotoma rhomboidalis*, much enlarged.  
 ,, 10.—*Mitra coarctata*, much enlarged,  
 ,, 11.—*Drillia stiza*, much enlarged,  
 ,, 12.—*Mitra alokiza*, enlarged.

## Plate III.

- Fig. 1.—*Triton Woodsii*, Tate MS., twice nat. size.  
 ,, 2.— ,, ,, ,, ,, twice nat. size.  
 ,, 3.—*Fasciolaria Tenisoni*, twice nat. size.  
 ,, 4.—*Drillia integra*, twice nat. size.  
 ,, 5.—*Æsopus crebrecostratus*, twice nat. size.  
 ,, 6.—*Fusus styliformis*, enlarged.  
 ,, 7.—*Mitra dictua*, enlarged.  
 ,, 8.—*Columbella hemiothone*, enlarged.  
 ,, 9.—*Æsopus semicostatus*, enlarged.  
 ,, 10.—*Fusus Ino*, twice nat. size.  
 ,, 11.—*Pleurotoma clarae*, enlarged.  
 ,, 12.—*Pleurotoma clarae*, var., twice nat. size,

## Plate IV.

- Fig. 6—6a.—*Trophon succinctus*, nat. size.
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